

USA - Colorado Greenhouse Gas Emissions and Energy Management for Manufacturing Regulation

General Information

ETS Description

In October 2023, the Colorado Air Quality Control Commission (AQCC) adopted regulations establishing an ETS covering large in-state manufacturers, beginning with the first compliance year in 2024. The regulations are designed to support the achievement of Colorado's statutory industrial and manufacturing sector-wide as well as its economy-wide GHG emission reduction goals. The regulation prioritizes benefits to disproportionately impacted communities through reductions of locally harmful air pollutants.

The AQCC initially set reduction requirements (but not yet an ETS) for large manufacturing emitters through the Greenhouse Gas and Energy Management for Manufacturing regulation (GEMM 1) beginning in 2021, under the statutory direction of Colorado House Bill 19-1261. The GEMM 1 regulation applied to energy-intensive, trade-exposed (EITE or GEMM 1) manufacturing stationary sources that produced equal to or greater than 50,000 tCO₂e emissions annually. This threshold was lowered to 25,000 tCO₂e with the adoption of the amendment of the GEMM regulation (GEMM 2). Currently, four manufacturing stationary sources are considered GEMM 1 facilities.

The AQCC expanded the GEMM 1 rule through the adoption of GEMM 2 in October 2023. The GEMM 2 regulation currently covers 18 manufacturing facilities (emitting equal to or greater than 25,000 tCO₂e) in addition to the four facilities that fall in the EITE (GEMM 1) categorization. While GEMM 2 institutes absolute emission reduction requirements, EITE (GEMM 1) sources adhere to intensity-based emissions limitations.

Under the new GEMM 2 rule, an EITE (GEMM 1) facility's annual emissions limit for a compliance year is calculated by using the facility's previous year's production totals and emissions intensity requirement and applying a 5% mass-based emissions reduction. The annual emissions limit varies each year depending on the production level of the facility. The facility's emissions intensity requirement is reflective of best available control technology and industry standards and is updated every 5 years.

A GEMM 2 facility's GHG emissions requirement is based on the facility's historical mass-based emissions reductions between 2015 and its baseline year (either 2021 or 2022, whichever year has the higher emissions) and the facility's share of emission contributions to the GEMM 2 group's cumulative baseline. These two factors were used to determine their interim (2024 to 2029) and 2030 emissions requirements such that the group of 18 facilities collectively achieve a 20% mass-based reduction in emissions by 2030 relative to the group's aggregate emissions in 2015. Beginning in 2030, before they may access the trading system, GEMM 2 facilities must implement their portfolio of onsite, technically feasible GHG reduction measures as well as undertake additional GHG and harmful air pollutant reductions if the facility is located near a disproportionately impacted community. The Colorado Department of Public Health and Environment's Air Pollution Control Division (APCD) reviews and approves the GHG reduction plans.

The GHG credit trading system will be established by the start of December 2024. EITE (GEMM 1) and GEMM 2 facilities will be able to trade GHG credits bilaterally or through bidding or offering their GHG credits in an annual auction, the first of which will take place on 30 June 2025. A technical stakeholder process is underway to develop guidance to facilitate trading between EITE (GEMM 1) and GEMM 2 facilities. This guidance sets out to ensure that trading EITE (GEMM 1) GHG credits (that are generated in relation to an intensity-based target) with GEMM 2 GHG credits (that are generated in relation to an absolute target) does not jeopardize progress toward Colorado's climate goals. The resulting trading guidance will be published by December 2024.

The AQCC also called for the APCD to propose the establishment of a state-managed fund to allocate money to finance projects to reduce GHG emissions from the sector by no later than September 2025. This fund would provide an additional compliance option for GEMM 2 facilities. The rulemaking hearing for the fund is set to be held by December 2025.

In February 2024, a House Bill (HB1339) was introduced that, if enacted, would prohibit covered emissions from increasing from January 2025, requiring sector emissions to decline so as not to exceed 97 MtCO₂e between 2025 and 2030. Furthermore, if enacted, HB1339 would prohibit facilities from fulfilling their compliance obligations by paying into a fund such as that the AQCC called for the APCD to propose. It would also establish facility-specific GHG emission reduction requirements for facilities whose emissions affect a disproportionately impacted community.

ETS Status

under development

Jurisdictions

Colorado

Sectoral coverage

Industry

Emissions & Targets

Overall GHG Emissions excl. LULUCF (MtCO₂e)

128.9 MtCO₂e (2020)

GHG reduction targets

By 2025: 26% reduction below 2005 levels

By 2030: 50% reduction below 2005 levels

By 2035: 65% reduction below 2005 levels

By 2040: 75% reduction below 2005 levels

By 2045: 90% reduction below 2005 levels

By 2050: Net zero (Colorado Revised Statutes 25-7-102(2)(g)(I))

Size & Phases

Covered emissions (2020)

4.00%

Verified ETS Emissions

4.50MtCO₂e

GHGs covered

CO₂, CH₄, N₂O, SF₆, HFCs, PFCs, NF₃

Phases

GEMM 1:

PHASE ONE: Five years (2025 to 2029)

PHASE TWO: Five years (2030 to 2034)

PHASE THREE: Five years (2035 to 2039)

PHASE FOUR: (2040 onwards)

GEMM 2:

PHASE ONE: Three years (2024 to 2026)

PHASE TWO: Three years (2027 to 2029)

PHASE THREE: (2030 onwards)

Cap or total emissions limit

The total emissions limit under the Colorado GEMM regulation is the sum of the facility bottom-up annual emissions limits (EITE GEMM 1) and facility emissions below 2030 reduction targets (GEMM 2) for all covered entities.

If HB1339 is enacted, sector-wide emissions will be capped at 97 MtCO₂e cumulatively between 2025 and 2030.

Sectors and thresholds

SECTORS: GEMM 1 and GEMM 2 regulations cover high-emitting stationary sources in the industrial and manufacturing sector.

GEMM 1 FACILITY INCLUSION THRESHOLDS: 25,000 tCO₂e and EITE source classification

GEMM 2 FACILITY INCLUSION THRESHOLDS: 25,000 tCO₂e

Point of regulation

Point source (industrial and manufacturing stationary sources)

Type of entities

Manufacturing stationary sources

Number of entities

GEMM 1: 4

GEMM 2: 18

Allowance Allocation & Revenue

Allowance allocation

GEMM 1 facilities are allocated GHG reduction credits annually, free of charge, based on the quantity of tCO₂e that the facility's annual direct GHG emissions are less than the facility's annual emissions limitation in the relevant year.

GEMM 2 facilities are allocated GHG reduction credits annually, free of charge, based on the quantity of tCO₂e that the facility's annual direct GHG emissions are less than the facility's 2030 GHG emissions requirement.

From the outset of the trading system, GEMM 2 facilities may generate credits through onsite carbon capture and storage projects, subject to an approved protocol. From 2031, GEMM 2 facilities will also be able to generate GHG reduction credits through offsite direct air carbon capture projects, subject to an approved protocol. Facilities that generate GHG reduction credits may use the credits toward future compliance obligations or may trade the credits to other GEMM facilities.

Use of Revenues

The Colorado ETS will not collect revenues or handle the exchange of funds from buyer to seller. The auction will facilitate the trade, but the financial transaction will be done directly between the facilities.

If the proposed state-managed fund is adopted by the Commission in 2025, and if HB1339 is not enacted prohibiting compliance through fund payments, GHG Reduction Fund revenues should be used to finance decarbonization projects at other industrial sites located within "Disproportionately Impacted Communities", or finance otherwise cost-prohibitive on-site reduction projects within the group of covered entities, prioritizing projects in or near disproportionately impacted communities.

Flexibility & Linking

Offset credits

The use of offsets is not allowed as a compliance option.

Banking and borrowing

EITE (GEMM 1) and GEMM 2 facilities can bank GHG credits for up to three years from the date generated.

Borrowing is not allowed.

Links with other Systems

The Colorado GEMM GHG credit trading system is not linked with any other system.

Compliance

Compliance mechanism

Each EITE (GEMM 1) and GEMM 2 facility must surrender one GHG credit per tCO₂e that exceeds its annual emissions limit or compliance obligation in the relevant compliance period.

Compliance Period

GEMM 1: One year

GEMM 2: Two three-year compliance periods (2024 to 2026 and 2027 to 2029) with one year compliance periods from 2030 and beyond

Monitoring, Reporting, Verification (MRV)

GEMM 1:

Reporting: Beginning in 2026, EITE (GEMM 1) facilities must submit a report by May each year including data regarding the previous year's total emissions, total units of production, and emissions rate per product.

Verification: EITE (GEMM 1) facilities must have a third-party auditor conduct energy and GHG emission control audits every five years to establish and determine whether GHG best available emissions control technology (GHG BAECT) and energy best management practices (energy BMP) are being employed. The audit reports require both GHG BAECT and energy BMP analyses that identify and rank all technically feasible control technologies and strategies and energy efficiency measures.

GEMM 2:

Reporting: Beginning in 2025, GEMM 2 facilities must submit a report by the end of March each year, including data regarding the previous year's total direct emissions. GEMM 2 facilities must also submit GHG reduction plans that identify what technically feasible portfolio of onsite measures at or below the 2030 social cost of GHGs they plan to use to meet their emission reduction requirements. Compliance reports as well as GHG reduction plan progress and compliance reports must be submitted by the end of September for each compliance period (2024 to 2026 to be submitted in 2027, 2027 to 2029 to be submitted in 2030, and annually from 2030 onward).

Verification: GHG reduction plans must undergo a technical and regulatory review by an independent third party.

FRAMEWORK: The rules for reporting GHG emissions for EITE (GEMM 1) and GEMM 2 facilities are outlined in Colorado's "Greenhouse Gas Reporting and Emission Reduction Requirements Emissions regulation".

Enforcement

GEMM 1: In the event of noncompliance, EITE (GEMM 1) facilities will need to surrender three GHG credits for every tCO₂e emitted in excess of the facility's annual emissions limit and may be subject to a civil penalty or other enforcement action.

GEMM 2: In the event of noncompliance, a GEMM 2 facility's GHG emissions reduction requirement for the relevant compliance period will be adjusted downwards by at least two times the amount that the facility exceeded its emissions reduction requirement. The resulting increased compliance obligation must be achieved within three years of the period of non-compliance. GEMM 2 facilities not in

compliance for a particular year must submit a mitigation plan by the end of the following calendar year. Civil penalties and other enforcement actions may also be assessed.

Market Regulation

Market Stability Provisions

INSTRUMENT NAME: Greenhouse Gas Reduction Fund (price ceiling)

TRIGGERS: The AQCC directed the APCD to propose the establishment of a state-managed fund to receive and allocate monies to finance projects to reduce GHG emissions from the industrial and manufacturing sector by no later than September 2025, and to request a hearing on this matter by no later than December 2025. If the Commission adopts such a fund, it will serve as a compliance option for any GEMM 2 facilities unable to comply by other means laid out in the rule. The compliance price would also be set at a per tCO₂e cost, which is expected to be set above any regulatory price cap for onsite reductions. However, if HB1339 is enacted, payment into the fund will be prohibited as a compliance option.

Market Design

MARKET PARTICIPATION: Covered entities

MARKET TYPES: A GHG credit trading system will be established by December 2024. EITE (GEMM 1) and GEMM 2 facilities may either bilaterally contract between themselves or may participate in an annual auction held in June each year starting in 2025.

Bilateral contracting: APCD will help to facilitate direct transfers of GHG credits between covered entities but will not handle the money for any transactions.

Auction: Bidders may not also be offerors for the same vintage year of credits and vice versa. APCD will administer the auction but will not handle the money for any transactions.

Other Information

Institutions involved

Colorado State Legislature: Adopted SB19-06 and HB 21-1266 which set requirements for a GHG accounting system and trading program.

Colorado Air Quality Control Commission: Responsible for holding hearings and adopting regulations on air quality matters consistent with statutory direction.

Colorado Department of Public Health and Environment Air Pollution Control Division: Responsible for developing, administering, and enforcing the adopted AQCC regulations based on a mandate from the Colorado legislature.

Regulatory Framework

[Greenhouse Gas Emissions and Energy Management for Manufacturing Phase 1 and Phase 2 Regulation \(AQCC Regulation 27\)](#)

[Climate Action Plan to Reduce Pollution \(House Bill 19-1261\)](#)

[Greenhouse Gas Emission Reduction Measures \(Senate Bill 23-016\)](#)

[Environmental Justice Disproportionate Impacted Community \(House Bill 21-1266\)](#)

[Collect Long-term Climate Change Data \(Senate Bill 19-096\)](#)

[A Bill for an Act Concerning Measures to be Taken by the AQCC to Reduce Air Pollution in the State \(House Bill 24-1339\)](#)

Evaluation / ETS review

The AQCC has directed the Division to evaluate the trading program and to identify any modifications that may be necessary. If any such modifications are identified by the Division, the AQCC requests that the Division bring a petition to request a rulemaking hearing to the AQCC by September 2025. In addition, the AQCC has directed the Division to report on the following credit trading system items on or

before the end of December 2025:

- The status of the trading program
- The co-pollutant reductions associated with the credits generated for the trades
- Updated projections for the 2026 credit market, and likely compliance pathways for the GEMM 2 facilities

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